

GAS – EXIT 100



FOOD – EXIT 100



*Study of 9 Panel
and
Overflow Combination
Logo Signs*

FOOD – EXIT 100



LODGING – EXIT 100



ATTRACTIONS – EXIT 100



Evaluating Options to Increase Specific Service Signs from 6 to 9 Businesses

9 Panel Sign



I-85, Exit 49; Division
10



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DEPARTMENT OF TRANSPORTATION

TESSB, Signing

Evaluating Options to Increase Specific Service Signs from 6 to 9 Businesses

Overflow Combination Sign



Existing Standard 6 Panel Sign



I-77, Exit 25; Division
10



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Background

- More businesses want to participate in the programs than there is space available on the logo signs.
- No current data available to show that increasing the number of services on signs is not an acceptable signing solution.
- At the Board of Transportation's request, TESSB committed to develop these pilot projects.
- TESSB submitted a "request to experiment" to FHWA, October 25, 2004
 - Included both Combo and 9-Panel options (15 Sites each)
 - Included workplan for conducting study
 - Before and after data
 - Study of the effects on safety
- FHWA's response
 - Requested expansion of human factors test to include a survey of motorists combined with questionnaires.



9 Panel Logo Sign Locations

- 1) US 70, Exit 414 in New Bern; erected February 2003 (Div 2)
- 2) I-95, Exit 22 in Lumberton; erected November 2003 (Div 6)
- 3) I-95, Exit 49 in Fayetteville; erected November 2003 (Div 6)
- 4) I-40, Exit 125 in Hickory; erected August 2005 (Div 12)
- 5) I-40, Exit 151 in Statesville; erected August 2005 (Div 12)
- 6) I-77, Exit 36 in Mooresville; erected August 2004 (Div 12)
- 7) I-40, Exit 50 in Asheville; erected February 2006 (Div 13)
- 8) I-40, Exit 105 in Morganton; erected March 2005 (Div 13)
- 9) I-26, Exit 49 in Hendersonville; erected September 2005 (Div 14)
- 10) US 74, Exit 102 in Waynesville; erected September 2005 (Div 14)
- 11) I-85, Exit 49 in Concord; erected June 2005 (Div 10)
- 12) I-95, Exit 97 near Selma; erected April 2005 (Div 4)
- 13) I-95, Exit 121 in Wilson; under construction (Div 4)
- 14) I-26, Exit 53 (Old Exit 22) near Flat Rock; erected May 2006 (Div 14)
- 15) I-85, Exit 213 in Henderson; erected August 2006 (Div 5)

***14 Projects Completed, 1 Under Construction;
8 of 14 Divisions Participating***



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Overflow Combination Logo Sign Locations

- 1) US 64, Exit 512 near Williamston; erected in January 2005 (Div 1)
- 2) US 421, Exit 242 near Winston-Salem; construction pending (Div 9)
- 3) I-85, Exit 60 in Kannapolis; erected in May 2004 (Div 10)
- 4) I-40, Exit 50 in Asheville; erected in February 2006 (Div 13)
- 5) I-40, Exit 146 near Statesville; erected in August 2005 (Div 12)
- 6) I-40, Exit 174 in Winston-Salem; erected in October 2004 (Div 9)
- 7) I-77, Exit 25 in Huntersville; erected in September 2004 (Div 10)
- 8) I-95, Exit 95 near Smithfield; erected in April 2005 (Div 4)
- 9) I-26, Exit 37 near Asheville; construction pending (Div 13)
- 10) I-85, Exit 153 near Mebane; erected in August 2005 (Div 7)
- 11) I-40, Exit 31 near Canton; erected in May 2006 (Div 14)
- 12) I-40, Exit 44 near Asheville; erected in October 2002 (Div 13)
- 13) I-240, Exit 6 in Asheville; erected in October 2005 (Div 13)
- 14) I-240, Exit 8 in Asheville; construction pending (Div 13)
- 15) I-26, Exit 40 near Asheville; construction pending (Div 13)

***11 Projects Completed, 4 Pending;
8 of 14 Divisions Participating***



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2 Parts of the Study in Progress

- Data collection and evaluation (video) at specific sites - UNC Highway Safety Research Center (HSRC):
 - Braking
 - Lane Drift
 - Encroachment on Center and Edgelines
- Human Factors Study - Dr. Joe Hummer, NCSU
 - Questionnaire at Rest Areas to determine how motorists use logo signs (Survey)
 - Testing on Focus Groups in controlled setting by presentation of sign images (Laboratory Study)
 - To determine if more panels on signs affects motorists ability to use the signs
 - Test subjects responded to images of logo signs (slide-based experiment with 1 second and 2.5 seconds to view slides)
 - Tested 53 scenarios (6 panel, 9 panel, combo signs) and compiled results based on percentage of correct responses



Preliminary Results

1) HSRC data collection and review:

1 site: I-95 NB @ US 70 (Exit 97) in Smithfield

1 control site: I-40 EB @ NC 62 (Exit 143) in Burlington

- Indicates little difference between 6 and 9 panel sign locations
- Submitted from HSRC, April 6, 2006

2) Results of human factors survey conducted at rest areas on I-95 in Rocky Mount and I-40/85 near Burlington:

- Conducted 325 interviews in March 2006
- 95% of motorists use logo signs to determine where to start
- Significant number of motorists scan logo signs rather than look at each panel
- Submitted from NCSU, June 5, 2006



Preliminary Results (continued)

3) Draft results of the laboratory study received August 17, 2006:

- 9 panel signs performed well from a human factors point of view
- Response percentages for 9 panel questions were usually competitive with, and sometimes surpassed the combo signs, and were not far behind the 6 panel signs
- Surprising result was that respondents performed much better searching for the unfamiliar logo than for the familiar logo
- Drivers and their passengers are likely to be as safe with the 9 panel signs as with other logo signs



Next Steps in the Studies.....

- 1) Continue data collection and evaluation (video) :
 - 5 - 9 Panel sites
 - 5 Overflow Combo sites
 - 5 Control sites
- 2) Compare the data of each group to determine effect of pilot signs on driver behavior
- 3) Complete and analyze the Human Factors testing (draft submitted last week)



What Will the Department Do Next.....

- Consider the preliminary data and reports from studies underway
- Update FHWA on initial findings
- Wait for final data and reports from completed studies
- Decide if results from studies are sufficient (If not, we could expand research effort)
- Goal to have data from the specific logo sites collected and evaluated, or be in the process of being evaluated within 18 months of installations
- Goal to make recommendation to FHWA within 2 years of last pilot sign installations



Questions?



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